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WEATHER SUMMARY FOR JUNE 1887.

During the past month the weather over India has been somewhat changeable. At times both branches of the monsoon current have blown with normal strength, and have occasioned heavy rains over a considerable part of India; at others both currents have been feeble, and the accompanying rainfall partial and intermittent.

The Bombay monsoon current broke on the West Coast quite at the commencement of the month. It set in somewhat feebly on the Malabar Coast on the 3rd; by the 4th it had extended as far north as Karwar; by the 5th to Bombay; and by the 7th it had penetrated inland over a large part of the Central Provinces. During the whole of this period very unsettled weather had prevailed over the Arabian Sea, where a cyclonic storm had apparently been formed. This storm disturbed the normal distribution of pressure, and as a consequence the barometric gradient along the West Coast of India was less steep and less regular than usual, hence the monsoon current in that region was feebler and less steady than the normal, though under the influence of the depression the rainfall was exceptionally heavy. On the 8th the rainfall at the Coast stations fell off somewhat, and by the 9th the storm over the Arabain Sea had disappeared. With its dispersion the wind direction became normal, and strong south-west to west-south-west winds set in across the West Coast, and continued until the 16th. They brought heavy rain to the Coast districts, the average daily fall at Goa, Ratnagiri, and Karwar for the period 9th to 15th June being about 4 inches, and much cloud and vapour, though only moderate rain, to the Deccan, Central Provinces, and Central India. On the 17th the Bombay current was evidently becoming feebler; and from that date until almost the close of the month an unusually weak monsoon was blowing across the Coast. As a consequence, the rainfall decreased quickly; and from the 20th to the 29th the weather was fairly fine in Western India, and a well-marked break in the rains obtained. In the Central Provinces, the Berars, and Khandesh this break was less marked than on the West Coast, the weather continuing showery; but in the Bombay Deccan the weather was abnormally fair.

The information with regard to the unsettled weather which prevailed off the Bombay Coast during the first week of the month is, at present, incomplete; but the logs of ships which were traversing the Arabian Sea at this time showed that—

On June the 6th and 7th the storm was forming between longitude 68° and 70° and latitude 70° and 18°. The Peninsular and Oriental steamer *Assam*, which left Bombay at 5-35 P. M. on the 7th, had squally weather from south-west and south-south-west. The *Draco* had a strong squall of wind and rain from north-north-east. At noon on the 7th the centre of the storm was in latitude 17°30′ and longitude 68°50′, or about 350 miles west-south-west from Bombay.

On the 8th the *Assam* had a moderate south-south-east gale in the forenoon, and a strong easterly to east-north-easterly gale in the afternoon. The storm centre crossed this ship's track, and immediately afterwards a terrific south-east gale was experienced. The lowest barometer reading was 29·10 inches at midnight on the 8th. The apparent position of the storm centre at noon on the 8th was latitude 17°50′ and longitude 68°10′, so that the movement was very slowly west-north-westward.

On the 9th between noon on the 8th and noon on the 9th the storm had moved very much more quickly, the apparent position of the centre at noon on the 9th being latitude 18°20′ and longitude 65°, about 200 miles west-north-west of its position on the previous day. The *Assam* in 17°50′ and 67°1′ had squally southerly winds; the *Clan Forbes* in latitude 17° and longitude 65° had a terrific gale from south-south-west; and the *Lorna Doone* in latitude 19°48′ and longitude 64°33′ had a hurricane from north-east.

Between the 9th and 10th the storm had again moved very quickly, the centre at noon on the latter date being apparently in latitude 19° and longitude 61°10′. The *Assam* in latitude 17°25′, longitude 63°33′, had a southerly squally gale; the *Rothesay* in latitude 14°39′, longitude 58°13′, had a heavy south-south-west gale; the *Clan Forbes* in latitude 16°36′, longitude 66°, a strong south-west gale; the *Darien* in latitude 17°16′, longitude 62°40′, a south-westerly hurricane; the *Lorna Doone* in latitude 19°52′, longitude 63°53′, a south-south-east fresh gale and the barometer as low as 28·80 inches; the *Nizam* in latitude 16°6′, longitude 59°19′, a strong south-west gale, with furious squalls and heavy rain; while the *Albany* in latitude 19°49′, longitude 60°35′, on the north-western side of the centre had a northerly gale, with the barometer marking 29·10 inches.

On the 11th the rate of movements of the storm seems to have slackened considerably. The centre apparently passed over the *Albany* at noon on the 11th in latitude 19°4′ and longitude 60°25′, when the barometer marked about 28·75 inches. For about 15 minutes after noon a dead calm prevailed over the ship, during which numerous birds, hawks, &c., flew about the rigging. At the end of that time the wind, which had previously been north, burst out with hurricane force from south. The *Assam* in latitude 17°23′, longitude 62°10′, and the *Nizam*, hove to in about latitude 15°30′ and longitude 58°54′; both had hard south-west gales.

On the Bengal side strong monsoon winds blew from the 1st to the 3rd of June, and heavy falls of rain, ranging from 5 to 15 inches, occurred over Burma and Bengal. After the 3rd the current steadily decreased in force, and the rainfall fell off till, by the 8th, an almost complete break in the rains was reported from Northern India. On the 10th however, a change took place. This change was brought about by the formation of a small storm over the head of the Bay. On the morning of the 12th the centre of the storm was approaching Ganjam, and rain was falling heavily in the Carnatic and the Circars. On the 13th the storm centre crossed the coast between Gopalpore and Vizagapatam and rain was falling over Burma, Bengal, Assam, and Orissa; and on the 14th the depression was crossing the Central Provinces, causing general moderate rain over the Central part of India and at some places in the North-West. Between the 14th and 17th the force of the monsoon current was moderate and the weather showery. On the 18th the current again strengthened; and on the 19th a small depression formed over the head of the Bay. This depression travelled towards Central Behar, and by the 21st had reached Patna. It had given fairly general rain to a large part of Northern and North-Eastern India; and the strong monsoon winds it engendered brought unusually cool, damp weather to a large part of Northern and North-Western India. On the 21st the storm broke up; and after the 23rd the monsoon current decreased rapidly. The rainfall became first moderate and intermittent, and finally ceased almost entirely, and a break in the rains set in, which lasted until the close of the month.

In the south of the Peninsula there was little to call for remark during the earlier half of the month; but, with the break in the rains in Northern and Central India, a period of heavy rainfall set in over the Madras Presidency, which raised the month's fall above the average.

In Upper India the weather has been generally hot and oppressive. On the 2nd and 3rd thunderstorms and rather heavy falls of rain occurred on and near the hills of the Punjab and the North-Western Provinces; but the temperature on the whole was high during the first eight days of the month. After the 8th more cloud and moisture prevailed, and the heat was somewhat mitigated; but in the latter half of the month the weather again became hot with dry westerly winds, and temperatures exceeding 110° were registered at almost all stations in the Punjab. At Dera Ismail Khan on the 30th the thermometer in the shade reached 118°.

The mean pressure of the month on the whole exceeded the normal average, the principal exceptions being the hill stations of the North-West Himalaya, the West Coast (except Bombay, Cochin and Mangalore), Guzerat, Sind, and the Circars, in all of which districts pressure was deficient.

Temperature was below the mean, except at some stations in the North-Western Provinces, the Punjab, and Sind, where the average was exceeded. The defect was greatest and most general in Western, Central, and Southern India, amounting to over 5° at Cochin and Neemuch, and to over 4° at Seoni and Hyderabad (Sind).

The month's rainfall has been generally fair. In the Punjab, the North-Western Provinces, Rajputana, Sind, Guzerat, Bengal and Circars, Burma and the Deccan, the amount has been short; but in the majority of cases the deficiency is not large. It is mostly attributable to the weakness of the Bengal current, and to the fact that the monsoon storms, which have been formed over the Bay, have been less numerous and less lasting than is the case in years of normal conditions, and that they have not penetrated into Upper India. The Bombay and Malabar Coasts and the districts fed by the Bombay current have generally had excessive rain; and this is also the case in Mysore and the Carnatic.